Remarks

Claims 1-3, 6-15, and 17-21 are now pending in this application. Claims 1-3, 6-15, and 17-21 are rejected. Claims 4, 5 and 16 are canceled without prejudice, waiver, or disclaimer. Claims 1-3, 8-9, 15, and 17 have been amended. No new matter has been added.

The rejection of Claims 1-21 under 35 U.S.C. § 103(a) as being unpatentable over Hart et al. (U.S. Patent No. 6,005,759) in view of Swales ("Open MODBUS/TCP Specification", Release 1.0, Schneider Electric, 29 March 1999) is respectfully traversed.

Hart et al. describe a mixed MODBUS/DNP network including masters and slaves employing different protocols (column 14, lines 50-52). A first protocol, such as, MODBUS, is encapsulated into a second protocol, such as, distributed network protocol (DNP), for communications over the network (column 14, lines 52-55). A MODBUS master application, such as an off-line application (20), sends a request over a MODBUS network (21), such as a telephone line, to a MODBUS/DNP interface residing in a gateway (17) (column 14, lines 55-58). The interface embeds the MODBUS protocol into DNP protocol (column 14, lines 58-61). The interface transmits the embedded MODBUS protocol over a MODBUS network (41), which is a network having one protocol, such as DNP network or the MODBUS network, such as a radio network, to a desired intelligent electronic device (IED) slave device (43 or 45) (column 14, lines 61-65). The MODBUS slave device (43) interprets and acts on MODBUS protocol (column 15, lines 18-19). Accordingly, the received embedded MODBUS protocol is stripped of its DNP encapsulation by a DNP command processor within the MODBUS slave device (43). (column 15, lines 19-22). After the MODBUS slave device (43) processes a request from the a MODBUS application (20), the device prepares a MODBUS protocol response at a MODBUS command processor and transmits the response to the DNP command processor via an internal message exchange where the response is encoded or encapsulated in DNP protocol for transfer over the (MODBUS) network (column 15, lines 25-31). The encoded DNP response is converted to its original MODBUS protocol at the MODBUS/DNP

interface in the gateway and then sent to the MODBUS application (column 15, lines 31-33).

Swales describes MODBUS/TCP, which is a variant of a MODBUS family of simple, vendor-neutral communication protocols intended for supervision and control of automation equipment (section 2). Specifically, MODBUS/TCP covers a use of MODBUS messaging in an Intranet or Internet environment using TCP/IP protocols (section 2). A most common use of the TCP/IP protocols are for Ethernet attachment of PLC's, I/O modules, and gateways to other simple field buses or I/O networks (section 2).

Claim 1 recites a power control management system comprising "at least one intelligent end device (IED); a control computer comprising an Ethernet server configured to create and encapsulate a first set of messages intended for said at least one IED, in an industry standard format; and an Ethernet gateway configured to communicate with said server and transmit the first set of messages to said at least one IED, wherein said gateway further configured to encapsulate a second set of messages returned from said at least one IED with an industry standard header and footer, and transmit the encapsulated second set of messages to said Ethernet server."

Neither Hart et al. nor Swales, considered alone or in combination, describe or suggest a power control management system as recited in Claim 1. Specifically, neither Hart et al. nor Swales, considered alone or in combination, describe or suggest an Ethernet gateway configured to communicate with the server and transmit the first set of messages to the at least one IED, where the gateway further configured to encapsulate a second set of messages returned from the at least one IED with an industry standard header and footer, and transmit the encapsulated second set of messages to the Ethernet server. Rather, Hart et al. describe a gateway that receives an encoded DNP response and converts the encoded DNP response to an original MODBUS protocol, and then sends the original MODBUS protocol to a MODBUS application. Swales describes MODBUS/TCP that covers a use of MODBUS messaging in an Intranet or Internet environment using TCP/IP protocols. Accordingly, neither Hart et al. nor Swales, considered alone or in combination, describe or suggest the gateway further configured to encapsulate a second set of messages returned from the at least one IED with an industry standard header and

footer, and transmit the encapsulated second set of messages to the Ethernet server. For the reasons set forth above, Claim 1 is submitted to be patentable over Hart et al. in view of Swales.

Claims 4 and 5 have been canceled. Claims 2-3 and 6-8 depend, directly or indirectly, from independent Claim 1. When the recitations of Claims 2-3 and 6-8 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2-3 and 6-8 likewise are patentable over Hart et al. in view of Swales.

Claim 9 recites a method for communicating with intelligent end devices (IEDs) in a power control management system including at least one IED, an Ethernet gateway, and a control computer including an Ethernet server, the method comprising the steps of "electrically connecting the Ethernet gateway to the Ethernet server; configuring the server to create and encapsulate a first set of messages intended for IEDs in an industry standard format, wherein said configuring the server to create and encapsulate the first set of messages includes configuring the server to generate a second set of encapsulated messages by encapsulating the first set of messages; and configuring the gateway to remove the encapsulation from the second set of encapsulated messages and to transmit the first set of messages to the IEDs, wherein said configuring the gateway to remove the encapsulation from the second set of encapsulated messages comprises configuring the gateway to extract an industry standard header and an industry standard footer from the second set of encapsulated messages."

Neither Hart et al. nor Swales, considered alone or in combination, describe or suggest a method for communicating with intelligent end devices as recited in Claim 9. Specifically, neither Hart et al. nor Swales, considered alone or in combination, describe or suggest configuring the gateway to remove the encapsulation from the second set of encapsulated messages and to transmit the first set of messages to the IEDs, where configuring the gateway to remove the encapsulation from the second set of encapsulated messages includes configuring the gateway to extract an industry standard header and an industry standard footer from the second set of encapsulated messages. Rather, Hart et al. describe an interface that embeds a MODBUS protocol into a DNP protocol. The interface transmits the embedded MODBUS protocol over

a network to a desired intelligent electronic device (IED) slave device. The MODBUS slave device interprets and acts on MODBUS protocol. The received embedded MODBUS protocol is stripped of its DNP encapsulation by a DNP command processor within the MODBUS slave device. Swales describes MODBUS/TCP that covers a use of MODBUS messaging in an Intranet or Internet environment using TCP/IP protocols. Accordingly, neither Hart et al. nor Swales, considered alone or in combination, describe or suggest configuring the gateway to remove the encapsulation from the second set of encapsulated messages and to transmit the first set of messages to the IEDs. For the reasons set forth above, Claim 9 is submitted to be patentable over Hart et al. in view of Swales.

Claims 10-14 depend, directly or indirectly, from independent Claim 9. When the recitations of Claims 10-14 are considered in combination with the recitations of Claim 9, Applicants submit that dependent Claims 10-14 likewise are patentable over Hart et al. in view of Swales.

Claim 15 recites a system comprising "a computer programmed to create and encapsulate messages in an industry standard format, said computer further programmed to function as an Ethernet server for transmission of the messages and encapsulate the messages with a TCP/IP Ethernet header and footer; an intelligent end device configured to receive the messages; and a gateway configured to remove the encapsulation of the messages designated to be transmitted to the intelligent end device."

Neither Hart et al. nor Swales, considered alone or in combination, describe or suggest a computer as recited in Claim 15. Specifically, neither Hart et al. nor Swales, considered alone or in combination, describe or suggest a gateway configured to remove the encapsulation of the messages designated to be transmitted to the intelligent end device. Rather, Hart et al. describe an interface that embeds a MODBUS protocol into a DNP protocol. The interface transmits the embedded MODBUS protocol over a network to a desired intelligent electronic device (IED) slave device. The MODBUS slave device interprets and acts on MODBUS protocol. The received embedded MODBUS protocol is stripped of its DNP encapsulation by a DNP command processor within the MODBUS slave device. Swales describes MODBUS/TCP that covers a use of MODBUS messaging in an Intranet or Internet

environment using TCP/IP protocols. Accordingly, neither Hart et al. nor Swales, considered alone or in combination, describe or suggest a gateway configured to remove the encapsulation of the messages to be transmitted to the intelligent end device. For the reasons set forth above, Claim 15 is submitted to be patentable over Hart et al. in view of Swales.

Claim 16 has been canceled.

Claim 17 recites an Ethernet gateway comprising a programmable hardware device configured to "receive a first set of Ethernet messages from an Ethernet server in an industry standard format; remove both an Ethernet header and footer from the first set of Ethernet messages, leaving a second set of messages for transmission to at least one intelligent end device (IED); and transmit the second set of messages to the at least one IED, wherein the Ethernet gateway is located outside the at least one IED."

Neither Hart et al. nor Swales, considered alone or in combination, describe or suggest an Ethernet gateway comprising a programmable hardware as recited in Claim 17. Specifically, neither Hart et al. nor Swales, considered alone or in combination, describe or suggest a programmable hardware device configured to remove both an Ethernet header and footer from the first set of Ethernet messages, leaving a second set of messages for transmission to at least one intelligent end device (IED), and transmit the second set of messages to the at least one IED, where the Ethernet gateway is located outside the at least one IED. Rather, Hart et al. describe an interface that embeds a MODBUS protocol into a DNP protocol. The interface transmits the embedded MODBUS protocol over a network to a desired intelligent electronic device (IED) slave device. The MODBUS slave device interprets and acts on MODBUS protocol. The received embedded MODBUS protocol is stripped of its DNP encapsulation by a DNP command processor within the MODBUS slave device. Swales describes MODBUS/TCP that covers a use of MODBUS messaging in an Intranet or Internet environment using TCP/IP protocols. Accordingly, neither Hart et al. nor Swales, considered alone or in combination, describe or suggest a programmable hardware device configured to remove both an Ethernet header and footer from the first set of Ethernet messages, leaving a second set of messages, and transmit the second set of messages to the at least one IED, where the Ethernet

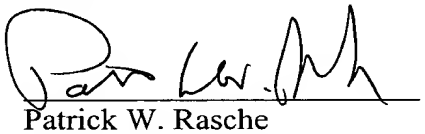
gateway is located outside the at least one IED. For the reasons set forth above, Claim 17 is submitted to be patentable over Hart et al. in view of Swales.

Claims 18-21 depend, directly or indirectly, from independent Claim 17. When the recitations of Claims 18-21 are considered in combination with the recitations of Claim 17, Applicants submit that dependent Claims 18-21 likewise are patentable over Hart et al. in view of Swales.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 1-21 be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



Patrick W. Rasche
Registration No. 37,916
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
St. Louis, Missouri 63102-2740
(314) 621-5070